

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. – 13. (Cancelled)

14. (Previously Presented) A multilayer wiring board having through holes in a thickness-wise direction,

wherein a semiconductor substrate mounted on the multilayer wiring board has through holes in a thickness-wise direction thereof, and wherein the through holes in the semiconductor substrate are located relative to the through holes in the multilayer wiring board so that entire areas, which the through holes in the semiconductor substrate occupy, in a plane orthogonal to the thickness-wise direction of the multilayer wiring board and of the semiconductor substrate are included in areas, which the through holes in the multilayer wiring board occupy.

15. (Previously Presented) A multilayer wiring board having through holes in a thickness-wise direction,

wherein a semiconductor substrate mounted on the multilayer wiring board has through holes in a thickness-wise direction thereof, and wherein the through holes in the semiconductor substrate are located relative to the through holes in the multilayer wiring board so that entire areas, which the through holes in the semiconductor substrate occupy, in a plane orthogonal to the thickness-wise

direction of the multilayer wiring board and of the semiconductor substrate partly overlap areas which the through holes in the multilayer wiring board occupy.

16. (Previously Presented) A multilayer wiring board having a cross-plane through hole or holes,

wherein an in-plane location of respective heat dissipating regions in a semiconductor substrate mounted on the multilayer wiring board is inside of a through hole or an area where through holes are built in the multilayer wiring board .

17. (Previously Presented) A multilayer wiring board having through holes in a thickness-wise direction,

wherein a semiconductor substrate mounted on the multilayer wiring board has cross-plane through holes, and heat flows one-dimensionally through the through holes in the semiconductor substrate and the cross-plane through holes in the multilayer wiring board when heat flows out to a surface of the multilayer wiring board opposite to that surface thereof, on which the semiconductor substrate is mounted, via the through holes in the semiconductor substrate and the through holes in the multilayer wiring board.

18. (Previously Presented) The multilayer wiring board according to one of claims 14 to 16, wherein conductive layers are formed on side surfaces of the through holes, or interiors of the through holes comprise a conductive material.

19. (Previously Presented) The multilayer wiring board according to one of claims 14 to 16, wherein a semiconductor element is mounted, in which conductive layers are formed on side surfaces of the through holes, or interiors of the through holes comprise a conductive material.

20. (Previously Presented) The multilayer wiring board according to claim 14, wherein wirings, which connect heating areas in the semiconductor substrate mounted on the multilayer wiring board, are electrically connected to the through holes in the semiconductor substrate, and electrical connection is effected through the heating areas, the wirings, the through holes of the semiconductor substrate, the through holes of the multilayer wiring board, and a surface of the multilayer wiring board, on which the semiconductor substrate is not mounted, in this order.

21. (Previously Presented) A multilayer wiring board having cross-plane through holes,

wherein in-plane distribution of heat dissipated from a transistor or transistors of a semiconductor substrate mounted on the multilayer wiring board substantially coincides with distribution of the through holes.

22. (Previously Presented) A multilayer wiring board having cross-plane through holes,

wherein in-plane distribution of heat dissipating from a transistor or transistors of a semiconductor substrate mounted on the multilayer wiring board substantially

coincides with in-plane distribution of large and small cross-sections areas of the through holes.

23. (Previously Presented) A wiring board,

wherein a semiconductor substrate having cross-plane through holes, which are connected to emitter wirings connected to emitters of heterojunction bipolar transistors and extended through the semiconductor substrate and which have conductive layers on sides thereof or inside thereof, is mounted on the multilayer wiring board, and the cross-plane through holes in the semiconductor substrate and through holes extending through the wiring board are connected to each other, and wherein conductive layers are provided on sides of or inside of the connected through holes in the semiconductor substrate and the wiring board, and in-plane areas, which the through holes in the semiconductor substrate occupy, in a plane of the multilayer wiring board and of the semiconductor substrate are included in areas which the through holes in the multilayer wiring board occupy.

24. (Previously Presented) A semiconductor device including a plurality of finger-shaped emitter electrodes or source electrodes, and at least one via hole which are arranged in rows in a first direction on a semiconductor substrate,

wherein the emitter electrodes or the source electrodes are connected to a conductive layer formed on a back surface opposite to a surface, on which the electrodes are formed, through the via hole, and

wherein said rows comprising the emitter electrodes or source electrodes, and the via holes are arranged in parallel in a second direction orthogonal to the first

direction, and the via holes are positionally shifted from one another in adjacent rows among said rows, or adjacent rows are positionally shifted from one another in the first direction.

25. (Previously Presented) The semiconductor device according to claim 24, wherein a multilayer wiring board has through holes formed on sides thereof or inside thereof with a conductive layer, and areas, which the via holes of the semiconductor device occupies, overlap areas which the through holes of the multilayer wiring board occupy in a plane orthogonal to a thickness-wise direction of the multilayer wiring board.

26. (New) A multilayer wiring board,
wherein emitter electrodes of heterojunction bipolar transistors are arranged on a semiconductor substrate, the semiconductor substrate is mounted on a wiring board, which wiring board has cross-plane through holes, and said through holes in the wiring board have on sides or inside thereof a material of good thermal conductivity, wherein the emitter electrodes are disposed in a group electrically connected by a common emitter wiring located in a plane over the semiconductor substrate, wherein emitter electrodes in a central area of the group are located over areas which the through holes in the wiring board occupy, and wherein emitter electrodes disposed at both ends of the group are not located over the areas which the through holes in the wiring board occupy.

27. (New) A multilayer wiring board having through holes, wherein emitter electrodes of heterojunction bipolar transistors are arranged in line on a semiconductor substrate, said semiconductor substrate is mounted on a wiring board, and said wiring board has cross-plane through holes, said through holes in the wiring board having on sides or inside thereof a material of good thermal conductivity,

wherein said emitter electrodes are arranged in a line to form groups, such that all emitter electrodes in a group are connected with a common emitter wiring, and

wherein, with respect to a positional relation viewed from a normal direction to an in-plane surface of said wiring board, central emitter electrodes in each group of said emitter electrodes are included in an area which said through holes occupy, but the emitter electrodes disposed at both ends of each group protrude from the area which the through holes occupy.